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ABSTRACT

In order to examine the effectiveness of a token economy program, sheltered workshop attendance of chronic schizophrenics was investigated under the following conditions: response cost versus no response cost consequences for nonattendance; response cost and noncontingent token payment; and restricted versus unrestricted mobility during the no response cost condition. The greatest attendance occurred during the response cost conditions, while the least occurred during the no response cost, unrestricted mobility condition. Workshop attendance per se and the wages earned at the workshop were found to be reinforcing to many patients.
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Conditions Affecting Sheltered Workshop Attendance
In a Token Economy

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Sheltered Workshop Attendance

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Conditions Affecting Sheltered Workshop Attendance

In a Token Economy

Work is a generally accepted therapeutic activity for chronic mental patients, for example, see Denber, 1960; Fink & Dunning, 1960; Oseas, 1961; Denber & Rajotte, 1962; and Greenland, 1962, and attendance at our hospital's Industrial Therapy sheltered workshop is consequently an important part of the Social and Vocational Rehabilitation (SVR) Unit's treatment program. Obviously, however, for this activity to have any benefit, it is necessary for patients to attend their work programs on a regular and consistent basis.

In the SVR Unit's token economy program, in which all patients participate, workshop attendance is one of the activities that is reinforced, and nonattendance, without an acceptable excuse, is consequted by a fine (response cost). In addition, all patients at the workshop are paid for the work they perform. The amount they receive per hour is based on the biweekly evaluations that are done by the workshop staff. At the time of the study, the pay rates ranged from 15 to 60 cents per hour. The patients receive their pay in a lump sum every two weeks, and this is the only source of pocket money for most of them.

Many patients say that they attend the workshop so they can earn money, and their attendance is usually quite regular, although occasionally a patient will pay the fine to be allowed to stay off work for a morning or afternoon. However, it has been noticed that many patients don't attend the workshop if nonattendance is not

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consequated. The best examples of this occur during the unit's monthly Free Day, where the first of each month is used to collect all tokens which were accumulated during the previous month and validate them for use during that month. All patients are encouraged to follow their normal daily activities on Free Day, but there are no consequences provided by the token economy program for this, or for not following their program. Many patients take advantage of this to sleep late and take a day off from the workshop, even though they would earn money if they attended.

The current study was done to examine the relative effectiveness of the token program, particularly the response cost condition, and the actual monetary payment for time worked in maintaining workshop attendance. The fact that attendance falls off when reinforcement and fines are not applied suggests that these conditions have some effect on sheltered workshop attendance. Some patients continue to go to work, however, regardless of the token economy condition, which suggests that factors outside the token economy, such as monetary payment or work activity per se are also important.

Method

Five female and 12 male inpatients who were on the beginning or middle levels of the SVR Unit's token economy program served as subjects. All were diagnosed schizophrenic, were between 20 and 42 years old ($M = 29.1$, $S.D. = 6.3$) and had between 2 and 18 previous psychiatric hospitalizations ($M = 6.9$, $S.D. = 4.6$). Their mean educational level was 11.1 years ($S.D. = 2.5$), and the mean number of weeks on the SVR Unit at the beginning of the study, and consequent involvement with the token economy was 35.2 ($S.D. = 5.16$).

(Eliminating the one person who had been on the program since its beginning -- a total of 220 weeks -- changes the mean and standard deviation to 23.6 and 20.5 respectively, which is a more accurate reflection of the group's experience with the SVR program). Twelve of the patients were single, 4 were divorced or separated, and 1 was married. A total of 3 patients were discharged from the hospital during the course of the study; their data are included up to the time of their discharge. All patients received standard psychotropic medication; this was not altered significantly during the course of the study.

The following conditions were investigated:

Phases 1, 3 and 7. These were response cost conditions. During these phases, the regular token economy program was in operation. In addition to being reinforced for successfully completing a variety of tasks, patients who attended the workshop were paid a fixed number of tokens at the end of morning and afternoon working hours. They were also fined a fixed number of tokens for nonattendance; these were collected at the time a patient elected not to go to work. Patients who did not attend the workshop were required to remain on their ward during working hours. These patients could not engage in recreational activities during working hours and were not allowed to sleep or lie on their beds.

Phase 2. Nonattendance was not consequated during this phase, as it no longer resulted in a fine. Patients continued to earn tokens for attending the workshop, however, and nonattenders were still required to remain on their ward during working hours, as above.

Phase 4. This phase was identical to Phases 1 and 3, with the

following exception: patients electing not to go to the workshop received, at the end of the morning and afternoon working hours, the same number of tokens they would have earned for attending the workshop. Patients who went to work still earned tokens, and nonattendance was again consequated with a fine.

Phase 5. This phase was identical to Phase 4. Tokens were given noncontingently to those who did not attend the workshop, and were paid to those who did. However, the fine for nonattendance was removed; not going to the workshop again became free, as it was during Phase 2. (Some patients complained that the noncontingent tokens were not included in their weekly performance averages, and intimated that they would not attend the workshop if their noncontingent tokens would count toward their averages. To investigate this, it was announced that the noncontingent tokens would be included in the weekly performance averages for each patient, starting at the midpoint of Phase 5. However, this did not seem to have any effect on workshop attendance, and consequently we reverted back to only including earned tokens in the averages at the conclusion of Phase 5).

Phase 6. This condition replicated Phase 2, where there was no fine for not attending the workshop. However, patients were now allowed free access to the hospital grounds during working hours instead of being restricted to their ward. This allowed them to go to the canteen, a popular gathering spot, and to wander about the grounds. To see if the noncontingent tokens would have an effect under these conditions, patients were given tokens whether or not they attended the workshop, the same as they had been in Phases 4 and 5, from the midpoint of Phase 6. No effects were

noticed, and so this was not presented as a separate phase.

Results

Patients could work a total of 3 hours in the morning and another 3 hours in the afternoon, for a maximum of 6 hours per day, if their schedules called for a 100% work program. Most patients, however, had some regular appointments or other activities scheduled during regular working hours, and were consequently scheduled to work less than the maximum. The number of scheduled work hours was determined for each patient. The number of hours actually worked by each patient was determined from the Industrial Therapy workshop's records. Although no formal reliability checks were made on these, they are considered accurate, and each patient's payment for work is based on them. In cases of discrepancy between these records and other sources regarding a patient's attendance at work, the workshop attendance records were considered valid.

Workshop attendance was examined in three ways: the percent of scheduled time actually spent at work, the mean number of hours worked, and the percent of total work opportunities filled. A work opportunity was defined as a morning or afternoon in which a patient was scheduled to be at the workshop, regardless of the length of time scheduled. Hence a maximum of 2 work opportunities per patient was possible each day. A work opportunity was considered filled if the patient attended when scheduled to do so.

Percent of Time Worked

The number of hours actually worked per day was expressed as a percentage of the total amount of time scheduled for work for each phase. These data are presented in Figure 1; the mean per-

centages of time at work and the standard deviations for each phase

Insert Figure 1 About Here

are in Table 1. It is apparent that the greatest percent of time at work occurred under the response cost conditions, particularly

Insert Table 1 About Here

during Phases 1 and 3. Phase 7, which was identical to these 2 phases did not have as great a percentage of time at work, although it is higher than the preceeding phase. (This may have been due to the fact that Christmas Leaves of Absence began at the conclusion of Phase 7, and this week is usually a relaxed one, as it immediately preceeds the holidays). While there is considerable within phase variability, the general trend is for percent of time at work to decrease during Phases 2, 5, and 6.

Mean Number of Hours Worked

The mean number of hours actually worked per day is presented in Figure 2; means and standard deviations are in Table 1. Analo-

Insert Figure 2 About Here

gous to the percent of time at work, the greatest mean number of hours worked occurs during the response cost condition, with corresponding less time spent at work under no response cost and unrestricted working hours mobility conditions.

Percent Attendance

The percent attendance was computed by dividing the number of filled work opportunities by the total work opportunities potentially available each day and multiplying by 100. As with the other variables, this analysis indicates that the greatest attendance at

the workshop occurs during the response cost conditions, and the least during the no response cost, unrestricted movement of Phase 6. Phases 2 and 5 were intermediate. These data are presented visually in Figure 3; the mean percent attendance and the standard deviations for each phase are presented in Table 1. Even during

Insert Figure 3 About Here

the no response cost conditions, however, a sizable percentage of work opportunities were filled, indicating that many patients continued to attend the workshop.

Discussion

Although there is considerable variability within each phase, it is apparent that the greatest attendance at the Industrial Therapy workshop occurred when nonattendance was consequted by a fine. Correspondingly less time was spent at the workshop when there was no consequence for nonattendance. The payment of non-contingent tokens, at least in the amounts used here, seems to have had little effect, although allowing patients free access to the hospital grounds during Phase 6 seems to have enhanced the no response cost condition. These statements hold whether examining attendance in terms of the percentage of scheduled time worked, the actual amount of time spent at the workshop, or the percentage of filled work opportunities.

The data suggest that the factors most important in maintaining workshop attendance probably are those outside the token economy, for many patients continue to attend the workshop when there are no consequences from the token economy for not attending, i.e., when they are no longer fined or when they receive the same number

of tokens by not attending as they would for attending. Two factors immediately suggest themselves. The first is the monetary payment patients received for their time at the workshop. Without this **income**, most patients would not have money for cigarettes, snacks, sundries, etc. The second factor which may maintain attendance is that the activities performed at the workshop may be intrinsically reinforcing. For example, some patients say that they do not necessarily like the workshop, but that it gives them something to do. Engaging in activities to reduce boredom may also explain why workshop attendance was slightly less during Phase 6. This condition gave the patients access to a greater variety of activities than were available to them during working hours on their ward. (As this phase occurred during the forepart of December, the unlimited mobility condition may have had a greater effect when the weather was good, if this interpretation is correct). Even considering these two factors, however, it is apparent that the response cost condition was essential in maintaining attendance at its highest levels.

The fluctuations in time at work within each phase may be due to patients' differing needs for tokens. For example, it appears that some patients in the no response cost conditions perform virtually all of their token economy activities to accumulate surplus tokens. They then use this surplus to pay their token economy expenses while staying off work, and return to the workshop only when they begin to run short of tokens. The number of tokens needed for this pattern to emerge seems to be determined individually, and may be related to the "reserve threshold" mentioned by Miller and Dermer (Note 1).

It would be instructive to know how patients who attended the Industrial Therapy workshop regularly, irrespective of the experimental condition in effect, differed from those whose attendance fell off during the no response cost conditions. There is some suggestion that highly institutionalized patients were most responsive to the differing conditions, although this needs further examination. A reliable assessment of this would be of considerable value in formulating treatment plans on an individual basis.

A problem in the current study, which is somewhat related to the last comment, is that some patients were discharged from the hospital before the study was completed. This is a potential source of bias, although inspection of the data indicates that the patients who were discharged were neither consistent attenders or nonattenders under the no response cost conditions. Ideally, the study should be replicated with no discharges until the study is completed, while obtaining detailed information on patient characteristics and their relationship to performance in the token economy and sheltered workshop attendance.

Two potentially important factors that might influence workshop attendance were not investigated directly in the present study, and should be included in any replication that is attempted. First, the reinforcing properties of the workshop wages and work performance per se, exclusive of token economy conditions, should be examined. It appears that these were important influences on workshop attendance, although their relative contributions, and interactions with the token economy conditions, remain to be determined. Second, the effects of token payment for workshop attendance were not investigated directly, although it was indirectly assessed by including

noncontingent tokens in the amount that could have been earned by attending the workshop during Phase 4 and the latter part of Phase 6. Tokens earned for attending the workshop appeared to be irrelevant to workshop attendance under these conditions, where they could be obtained by not going to work as well as by attending, although the question of whether patients would attend the workshop when there was no response cost and no token payment associated with attendance remains to be seen.

Finally, investigation of the relationship between immediate need for tokens, the number of tokens earned on previous days, and workshop attendance is needed. This would clarify the above observation that some patients accumulate surplus tokens, thus reducing their immediate need for tokens, and take advantage of this to remain off work, particularly during no response cost conditions, where surplus tokens do not have to be used to pay a fine. If this is confirmed, steps to eliminate the accumulation of surplus tokens should be taken.

It is apparent that response cost, freedom of movement during working hours, monetary payment, and perhaps work activity are related to workshop attendance, and that response cost is necessary to maintain attendance at its highest levels. Further work, along the lines suggested above, is now necessary to more adequately specify the relevant influence of each of these factors if token economy systems are to be used to enhance sheltered workshop attendance so that patients will be exposed to any benefits this activity might have.

Reference Note

1. Miller, H. R., & Dermer, S. W. The effects of exchanging surplus tokens for money on performance in a token economy.

Paper presented at the meeting of the Association for Advancement of Behaviour Therapy, New York, December, 1976.

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Figure Captions

Figure 1. Percent of time at work per day and mean percentage within each phase.

Figure 2. Mean number of hours worked per day and mean hours worked within each phase.

Figure 3. Percent attendance per day and mean percentage attendance within each phase.

Table I

Mean and Standard Deviation by Phase for Percent of Time at Work Per Day, Number of Hours Worked Per Day and Percent Attendance Per Day.

	<u>% Time At Work</u>		<u>Hours Worked</u>		<u>% Attendance</u>	
	<u>M</u>	<u>S.D.</u>	<u>M</u>	<u>S.D.</u>	<u>M</u>	<u>S.D.</u>
1	89.0	24.3	4.7	1.8	94.0	5.0
2	66.7	61.6	3.0	2.1	60.0	17.2
3	79.5	32.4	3.9	2.0	35.6	3.9
4	70.6	37.7	3.6	2.2	80.8	12.6
5	57.8	40.4	2.9	2.2	63.8	2.3
6	45.1	40.0	2.4	2.2	47.8	12.7
7	62.5	41.2	3.7	2.6	75.7	3.8





